DOCUMENT RESUME

ED 444 953 SP 039 404

AUTHOR Beisser, Sally R.

TITLE Posing Questions...Solving Problems: Action Research for Preservice Teachers.

PUB DATE 2000-04-28

NOTE 10p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 24-28, 2000).

PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Action Research; Educational Research; Elementary Secondary Education; Higher Education; *Inquiry; Preservice Teacher Education; Research Methodology; *Student Research; Student Teachers

ABSTRACT

Action research affords preservice teachers both opportunity and perspective to investigate practical needs and critical issues in classroom practice. A one-semester Educational Inquiry course enabled students to pose important questions as part of a required 2-hour experimental research course in a field-based teacher education program. This paper describes a course of study for undergraduate students to gain introductory knowledge of action research skills through understanding research terminology, qualitative and quantitative methodology, data collection techniques, and research resources to more closely link research and practice as they examined the nature of teaching. As part of the Educational Inquiry course, preservice students framed a research question, conducted a literature search, and organized and implemented a field-based action research study in order to synthesize coursework, field experiences, and related research. Perspectives in this paper reflect the voice of the university instructor and members of the class of 22 participating elementary and secondary education students enrolled in the course. (Contains 23 references.) (Author/SM)

Reproductions supplied by EDRS are the best that can be made
from the original document.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
S. R. Beisser
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

ED 444 953

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Posing Questions...Solving Problems: Action Research for Preservice Teachers

Dr. Sally R. Beisser, Ph.D.
Drake University, Des Moines, IA USA
sally.beisser@drake.edu

Abstract

Action Research affords pre-service teachers both opportunity and perspective to investigate practical needs and critical issues in classroom practice. A one-semester Educational Inquiry course enabled students to pose important questions as part of a required 2-hour experimental research course in a field-based teacher education program. This paper describes a course of study for undergraduate students to gain introductory knowledge of action research skills through understanding research terminology, qualitative and quantitative methodology, data collection techniques, and research resources to more closely link research and practice as they examine the nature of teaching. As part of the Educational Inquiry course, preservice students framed a research question, conducted a literature search, organized and implemented a field-based action research study in order to synthesize coursework, field experiences, and related research. Perspectives in this paper, reflect the voice of the university instructor and members of a class of twenty-two participating elementary and secondary education students enrolled in the course.

Introduction

As preservice teachers, Craig and Jeff wanted to keep animals in their primary classrooms, yet they wondered about the effects of introducing an animal to second graders. What were the benefits and detriments of housing an animal in a primary classroom? The classroom teachers with whom they worked had usually kept animals, but had not thought about the effects on student learning. Suzy was curious about using technology in teaching geography skills to fourth and fifth graders. Her mentor teacher was interested in improving skill levels, as well as, implementing new technology to teach geographic literacy. Amanda, along with her team of five peers, compared three classroom desk arrangements in a systematic study of rows, pods, and U-shape designs. With the help of the classroom teacher, who was willing to change his desk configurations each week, the team of preservice students monitored student to student social interaction of fourth graders, teacher responsiveness to students, and student achievement throughout the semester.

Students at Iowa State University had been interacting with mentor teachers in the regular classroom for three years prior to initiating their own action research projects. Facilitating preservice students in the development of an action research study in one semester was, indeed, a challenge. Based on a rich field-based experience beginning as a cohort of sophomores, this group of students, like the three cohort groups preceding them, had been working together as team members in their core education courses as elementary and secondary education majors. Therefore, as a student cohort, they had functioned as collaborative group members. When given a chance to work independently, students such as Suzy chose to work alone, in order to continue her research for her university Honors Research Project the following semester. Other students, such as Amanda, needed to work in a team of five students, in order to accommodate their college course loads and work schedules. Others worked in pairs with a similar research focus, such as Craig and Jeff with their mutual concern about having "pets" in the classroom. All students shared a common desire to conduct their research in a field-based setting where they had spent considerable amount of time with mentor teachers. Not only were these preservice teachers novices in the classroom, they were new to the concept and practice of conducting an educational study where *they* actually posed their own questions.

SP039404

BEST COPY AVAILABLE

Theoretical Framework

Action based on new knowledge developed through reflection and inquiry was the ultimate goal of this course (Patterson, Santa, Short, Smith, 1993). Students were challenged to reflect on their three years of previous classroom experiences. They were invited to seek understanding of particular individuals, actions, policies, and events in their classroom interactions over the past three years. They were asked to think of problematic situations that were puzzling, troubling, or that caused uncertainty (Schon, 1983). With encouragement, they began to pose and record questions about educational practice. (Woods, 1986; Zeichner, & Liston, 1996). All students were not enthralled about research or metacognitive tasks requiring reflective thinking. One student wrote this reflective excerpt in her journal.

> "I still have no clue as to my research project. I have been pondering a wide variety of possibilities. In a way I would like to study children of divorced parents, but I have not found an acceptable way of doing that yet. I don't want to fall into the trap of designing a complex study that cannot realistically be completed within the allotted time span."

Another student wrote:

> "I sat for hours brainstorming what I might possibly do for a research project this semester. I struggled with the question of what to do. I gave it a lot of thought. I wanted to do a project that I was intrinsically motivated to complete. Finally, I came up with an idea. I will design a research project to study the effect of an animal in the classroom!"

Traditionally, preservice students view the relationship of theory and practice as a hierarchical and dependent relationship (Patterson, Santa, Short, Smith, 1993). That is to say, they believe fully formed theory evolved from scientific research published in journal articles or accumulated in textbooks. Their beliefs from their field experiences support the notion that theory to improve classroom practice is mediated through curriculum designers or experts who speak at inservice meetings. That they could act as thinkers, learners, practitioners, and leaders was a novel concept for education majors. Not all students embraced their new role with equal enthusiasm.

> "Wow! This class is going to be a lot more work than what I had originally thought! I thought that all we were going to be doing is the research report and that was it!! I understand that there should be check-points throughout the semester to make sure that everything was going okay, but I never expected this! Oh, well, maybe it will help in the long run. Hopefully I will learn more than just about my research topic."

Another student commented:

> "It seemed like such a big name, "Educational Inquiry." I didn't know what it entailed, but I did know that it sounded professional. All of my professors have stressed how important professionalism is, and I have tried to behave professionally, but I still have always still felt like just a student. I don't know if I can handle this class."

Eventually the students became comfortable with "wondering" and "posing questions" about educational practice. Learning to view the field-based classrooms in which they had taught with a different lens required overcoming feelings of inadequacy and tension. They learned to pose questions. They tried to "love the questions themselves" (Hubbard & Power, 1993, p. 2).

Methods and Techniques

Arguably, those of us who conduct research on a regular basis would agree that one semester is simply not enough time to learn fundamentals of research, much less implement them. Adding this to the crammed course-load of most college education majors is not sound practice. However, with a well-organized, fast-paced, micro-managed course these education majors found they could respectably and responsibly learn and utilize research skills in the classroom.

Students needed to learn to become "reflective practioners" (Eyler, Giles, Schmiede, 1996). Weekly electronic journal entries required students to reflect about their experiences, readings, field research, and course progress. To organize their replies, they stated the date, topic, theme, or question to which they were responding. Some entries reflected students' thoughts and fears about this research course, while others were in response to my assigned prompts. Sample prompt assignments included:

- "What do you wonder about in the field of education? Share your wonderings."
- "What do think about as a goal in your own teaching?"
- "What are your goals in changing your teaching practices or to inform the practices of others?"
- "In what ways do feel face challenges in conducting your own research collaboratively?"
- "What are you learning in Educational Inquiry?"
- "What do feel you accomplished this week with your action research progress?"

Journaling assignments were evaluated on the thoughtfulness and quality of responses during regular entries over time throughout the semester. A final journal synthesis was important in understanding students' analytical perspective and intellectual growth as a result of this course. Submission of student journaling comprised their midterm and final "exams." While a relief to the students to not have an objective measure of their learning or performance, the reflective journals were invaluable check-points for me to see student growth and to provide feedback.

Students initially learned to become consumers of research, not by the practiced method of gleaning information from published works to merely support ideas for a research paper (generally due the next day!). Rather, they were required to analyze a research study from a research design perspective. First, given both refereed journal articles and published action research summaries, they cited the title, author, and publisher of selected articles using the *APA Publication Manual* (1994). The ability to correctly cite sources and references is a skill that university instructors cannot assume students have. Students needed instruction and examples of correct format. Next they summarized the content of a research article, analyzed the research paradigm, and condensed the steps of the research process used by this author in preparing this research. By critically examining research methodology, students compared the ways in which these steps were similar to the action research projects they were expected to complete within the semester.

Team membership was encouraged for students to manage the demands of scheduled appointments and visits in the schools, especially as they balanced their other university courses. Students were given a choice of group membership and composition. Some students preferred to work alone, others wanted a partnership, while others worked in a group of four or five. Each research team had a "research captain" with whom I communicated regularly regarding progress and challenges. E-mail and phone calls were essential communication tools for keeping up with daily research dilemmas. While the class met weekly for instruction, questions and problems occurred on a regular basis! I needed to be available to "trouble-shoot" or "provide clarification" An example from Emily's group concerns the difficulty labeling of students as "slow" or "reluctant" readers.

> "Tonight Sally called me and we discussed the research project. The main thing that we discussed was how exactly we should label the group of students that we wish to work with.

> After thinking about it, I agree that it is probably not a good idea to label the students 'reluctant' or 'slow'. For one thing, we would never want the students to know they were part of a group which set them apart from their peers in a negative way. For another, if we ask the teacher for her 'reluctant' or 'slow' readers, chances are we will probably end up with children with behavior problems. Therefore, after much discussion, we decided to ask the teacher for the 'third quartile' students. These are the students who would fall within the 25-50% range on either the ITBS or another reading assessment that the teacher does."

Permission to conduct research was obtained from the cooperating school district and buildings before the semester began. However, once the semester started, student "research captains" were required to contact classroom teachers where they had spent their preservice experiences. Although a specific district and several buildings were pre-established as part of the collaborative project, students chose the classroom teacher with whom they would work, as well as the action research topic. Nonetheless, the primary responsibility of designing, implementing, and sharing the results of the study rested with the college students, not the classroom teachers. From Suzy's Journal, she shares how she started her research process.

> "Today I set up my appointment with Mrs. Jackman and Mrs. Adams. Before I can design my pretest, i need to talk to them about what level their students are at. I'm thinking about either teaching them the capitals or general information they should know about each U.S. state. I've decided that I will teach one group without the computer, and one group with the computer. To find out about my question to whether or not technology makes influences learning, I'll go back and teach the group that didn't have the computer the first time after they take the post test."

As students made initial contacts in the schools, intense training took place during their university inquiry class to capture the essence of disciplined inquiry in the context of focused efforts to improve the quality of classroom teaching and learning (Calhoun, 1994). Distinguishing qualitative and quantitative methodology (Bogdan & Biklen, 1998) was important as students constructed data collecting instruments appropriate to the nature of their inquiry. The learning curve was steep as students learned skills and techniques for accomplishing the daunting task of designing and implementing their own action research study (Daiker & Morenberg, 1989; Hitchcock, & Hughes, 1991; Delamont, 1992; Eisenhart & Borko, 1993; Hubbard & Power, 1993; Springer, 1996).

During weekly class activities students practiced interviewing skills (Stringer, 1996), learned to transcribe recorded interviews, analyzed data using codes and themes, and shared progress of each step of their action research projects. Statistical software packages were presented in class to calculate descriptive statistics or inferential statistics. Some students had worked in the university educational research lab and willingly demonstrated several functions using SPSS and Survey Pro analytical software during class.

Understanding the ethics of research involved asking for permission before conducting any kind of study in the public schools. Students prepared parental consent forms, used alias names to protect the identity of the students and teachers with whom they worked, and allowed withdrawal from the study if any participants so requested. They learned some topics of interest were discouraged by the school principal, such as "effects of divorce on children." While they were disappointed in not pursing their area of interest, they learned to accommodate the professional discretion of the administration. Others considered terminology to best describe their population.

Evidence of Student Learning

BEST COPY AVAILABLE

At the beginning the semester, students would never have believed they were capable of completing action research projects on such sophisticated topics. They worked as collaborative research team members with a passion for investigating an issue or a topic of their own design. These final projects were outstanding examples of well-designed, organized, thoughtful action research studies by pre-service students.

"The Effect of Music Listening on 2nd Grade Spatial Reasoning Skills"
by Holly

"Acquiring Knowledge of Fractions Through Journal Writing with 4-5th Graders"
by Christy & Emily

"Gender Equity in 6-7th Grade Classroom Communication and Interaction"
by Brenda & Trish

"Is Technology Beneficial to 4-5th Graders When Learning Geography Skills?"
by Suzy

"Reciprocal Social Interactions: Recess and Classroom Learning Environments"
by Rachel, Angi, Jen & Steph

"Sixth Grade Student Attitudes About Reading After Using Computer Software"
by Emily, Heidi, Amy & Jamie

"The Effects of Introducing an Animal in a Second Grade Classroom"
by Craig and Jeff

"A Comparison of Three Classroom Desk Arrangements in 4th Grade: Rows, Pods, and U-Shape Designs"
by Sharon, Amanda , Sherri, Corissa & Lynn

From student journaling I understood ways in which students valued educational inquiry. Amy shares:

> "I started out with zero knowledge about action research. I barely even knew about how research was conducted in general, let alone 'action' research. I have learned the process of doing action research I have learned that action research exists as a useful tool for teachers. I was happy to learn that teachers are supposed to work together to do action research and share their findings and knowledge with peers."

Christina writes:

> "Action research is important to teachers because is helps them improve their teaching skills. Research can be shared throughout the school buildings with many teachers. Research can also help other teachers solve problems and be better educators. I want you to know that I am very interested in the research that I am doing. Emily and I have taking ownership of our research. I think that we are gaining tremendous experience because of the involvement of everyone in this project. Instead of being consumed with the paperwork, we can focus on the important aspects of the research. I can't wait to see what the months ahead will bring.

They see action research as important to teachers.

"Action research provides them [teachers] with a way to solve their problems and answer their questions. It is a very powerful tool. Teachers can use it on a small scale or on a very large scale and make national reports of their findings. The best part of action research, in my view, is that teachers share the information they gather so they aren't the only ones who benefit from their work. In the best interest of students, teachers share their valuable information with each other. In today's teaching environment it is important to document problems in the classroom and the results of solving them."

Results of the Educational Inquiry Course

With some degree of amazement, at the end of the semester every student accomplished an outstanding action research project! Requirements included the:

• *Abstract*: This included a 100-200 word summary including the research goal, question(s), inquiry design, and implications for further research.

• *Table of Contents*: This listed the sections in any well-organized manner.

• *Introduction*: This section provided the general background for the study and a context for it (including the school and district's goals if applicable) leading to the statement of the inquiry/research question.

• *Limitations*: These were aspects of the study which influenced the results, but over which they had little or no control. (Limitations referred to time, access, experience, schedule, policy, etc.).

• *Literature Review:* This was a discussion of previous research that relates to the research question. The purpose of this section was to position the inquiry within the literature of education research.

• *Methodology:* This included a clear description of the "Study Participants and Setting" portraying the respondents, community, school, classroom or wherever the study took place. The "Data Collection" section described how the study was organized, who was contacted, interviewed or surveyed. Students stated what was observed and activities in which they were engaged to acquire information. They described when, where and how they collected data, as well as how they kept records and organized data. Sample data gathering instruments were part of their appendices. The "Analysis of Data" described the manner in which data were analyzed including methods used (scores, tables, graphs, charts, summaries, narratives, etc.). They filed the actual tables, graphs, etc. in the appendices.

• *Findings*: This section provided a narrative of the data analysis above. What were the findings of the study? Explain the outcomes of the data analyses as related to your initial inquiry/research questions. How did the findings compare to your literature review?

• *Implications and Suggestions for further research:* This addressed how the results of the findings above informed their own teaching, student learning, or influenced the practice of others. Additional questions were stated that may have arisen from the investigation.

• *Appendices:* This included samples of communication, surveys, interview questions, completed data collection results, pertinent documents, and a bibliography in APA style.

At the end of the semester, all students completed their action research projects by writing them in professional format (Wolcott, 1990) and by giving formal 20 minute presentations to the university faculty who asked questions of the students after each session. Faculty response was

phenomenal. Students were applauded in the quality of their action research studies, the professional manner in which they shared their findings, and their defense of fielded questions. In addition, they completed an analyses of their individual and group cooperative performance.

Overwhelmingly, results from the educational inquiry course supported that preservice students are capable of complex activity such as action research in order to gain richer understandings of educational practice. Each of the twenty-two preservice students successfully completed the cycle of posing an initial question to the formulation of data collection, analysis, and conclusion resulting in still more thoughts and actions in continual need of revision (Noffke & Stevenson, 1995).

One student summarized at the end of the course:

> "When I hear the word 'research', I think of some monstrous project that takes forever to complete. I imagine people using lots of statistics to formulate an answer. I've learned that action research does not have to be like this--it is definitely much more "hands on" research. It's a great way for teachers to collaborate and find ways to improve/change a situation in their classroom. Action research helps teachers reflect on their own teaching practices. I like the fact that it influences change and improvement. I think it might help teachers feel they have more in control in the classroom."

Educational Importance:

As a result of designing and instructing this educational inquiry class, my professional recommendations included providing more opportunities for preservice students to view themselves as intellectually capable and practically responsible for posing questions and solving problems as practitioners. The action research process does not end in a juried publication, as with traditional notions of research. Rather, it facilitates the ongoing process of identifying educational needs and issues, which, in turn evolve into defensible, responsible plans of action. Preservice teachers need to define themselves as thinkers, learners, practitioners, and leaders in the field of education.

Heidi summarized her experience as follows.

> "When I found out I had to take a research class, I must say I was kind of upset. Then, shortly before school started, I was on the phone with my 94-year-old grandma complaining to her about this research class. She was a former schoolteacher, so she always enjoys hearing about the classes I am taking. She helped me realize why I am taking this class. She explained to me that when I am in my first full time position in a classroom I will understand that college is not about getting good grades, it is about learning how to find what you need to know. That is what this class taught me. I learned how to find what I can't find in any book. She also helped me realize that this class is perfect because it ties everything together. We have spent three years learning other peoples' theories, methods, and practices and now we are learning how to challenge these theories and create our own methods and practices. I now view this class as maybe even more practical than many of the other required classes I have taken. This is because it allows me to learn the skills of inquiry that will help me continually become a better teacher."

References:

Bogdan, R. B. & Biklen, S. K. (1998). *Qualitative research in education: An introduction to theory and methods.* Needham Heights, MA: Allyn and Bacon.

Calhoun, E.F. (1994). *How to use action research in the self-renewing school.* Alexandria, VA: Association for Supervision and Curriculum Development.

Daiker, D. & Morenberg, M. (1989). *The writing teacher as researcher: Essays in the theory and practice of class-based research.* Portsmouth, NH: Heinemann.

Delamont, S. (1992). *Fieldwork in educational settings: Methods, pitfalls, and perspectives.* London: Falmer Press.

Eisenhart, M. & Borko, H. (1993). *Designing classroom research: Themes, issues, and struggles.* Boston: Allyn & Bacon.

Eyler, J., Giles, Jr., D.E. & Schmiede, A. (1996). A practioner's guide to reflection in service learning. Vanderbilt University, Nashville, TN: A Technical Project funded by The Corporation for National Service.

Glesne, C. & Peshkin, A. (1992). *Becoming qualitative researchers.* White Plains, NY: Longman.

Hall, I., Campbell, C.H. & Miech, E.J. (Eds.) (1997). *Class acts: Teachers reflect on their own classroom practice.* Cambridge, MA: Harvard Education Review.

Hitchcock, G. & Hughes, D. (1991). *Research and the teacher: A qualitative introduction to school-based research.* London: Routledge.

Hubbard, R.S. & Power, B. M. (1993). *The art of classroom inquiry: A handbook for teacher-researchers.* Portsmouth, NH: Heinemann.

Noffke, S. E. & Stevenson, R.B., (Eds.) (1995). *Educational action research: Becoming practically critical.* New York: Teachers College Press.

Patterson, L., Santa, C. M., Short, K. G. & Smith, K. (Eds.) (1993). *Teachers are Researchers: Reflection and Action* . Newark, SE: International Reading Association, Inc.

Publication manual of the American Psychological Association (4th Ed.) 1994. Washington, DC: American Psychological Association.

Schon, D. (1983). *The reflective practitioner: How professionals think in action.* New York: Basic.

SPSS-Statistical Program for Social Sciences, Inc. (1994). Chicago, IL: Allegiant Technologies. http://www.spss.com/

Stringer, E. (1996). *Action research.: A handbook for practitioners.* Thousand Oaks, CA: Sage Publications.

Survey Pro (1996-1999). Seattle, WA: Apian Software, Inc. http://www.apian.com/survey/index.htm

Tabachnich, B.R. & Zeichner, K. (Eds.) (1991). *Issues and practices in inquiry-oriented teacher education.* PA: Press.

Walford, G. (1991). *Doing educational research.* London: Routledge.

Walkerdine, V. (1990). *Schoolgirl Fictions.* New York: Verso.

Wolcott, H. (1990). *Writing up qualitative research.* Newbury Park, CA: Sage Publications.

Woods, P. (1986). *Inside schools.* London: Routledge.

Zeichner, K. & Liston, D. (1996). *Reflective teaching: An introduction.* Mahwah, NJ: Lawrence Erlbaum.

NOTE: This research paper was presented at AERA –The American Educational Research Association in New Orleans in April 2000.

Beisser, S.R. (2000 conference proceedings). Posing Questions...Solving Problems: Action Research for Preservice Teachers. *AERA-American Educational Research Association International Conference*, New Orleans, LA.